EVALUATING ISO IMPROVEMENTS FOR PRINCE WILLIAM COUNTY, VA FIRE AND RESCUE SYSTEM

STRATEGIC MANAGEMENT OF CHANGE

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An applied research project submitted to the National Fire Academy as part of the Executive Fire Officer Program

April 2001

Appendices Not Included. Please visit the Learning Resource Center on the Web at http://www.lrc.dhs.gov to learn how to obtain this report in its entirety through Interlibrary Loan.

ABSTRACT

This research project focused upon the past and future ISO reviews for Prince William County. The problem facing Prince William County is similar to other communities: How should the system prepare for the 2004 ISO review? The purpose of this project was to evaluate the 1994 ISO review and develop recommendations that will lead to the most cost effective and efficient improvement to the system while potentially improving its ISO classification.

The evaluative method of research was used to a) to evaluate the weaknesses identified in the 1994 ISO review, b) to evaluate the system for any significant change to the system since the 1994 ISO review that could increase or decrease the system's rating, c) to evaluate the relationship between ISO and CFAI standards, d) to review the published experiences of other departments relative to the Prince William County fire and rescue system problems, and e) to determine what standards would provide the best service improvements while potentially improving the systems ISO rating.

The procedure included a system review of the past ISO grading of Prince William County in 1994 to determine areas that did not receive full credit. A review of the CFAI Self Assessment Manual and ISO's Fire Suppression Rating Schedule provided a linkage of congruent review items. Literature search journal articles on the subject and the experiences of other EFO research provided insight to similar departments' efforts to improve service while positively impacting the ISO rating. The result revealed opportunities for Prince William County to easily improve ISO credit and potentially improve the ISO rating through simple policy and procedure implementation on testing of pumps and hose and general record keeping. The position of national

organizations, fire service leaders, and the experiences of other departments were consistent in recommending that the ISO Grading Schedule should not be used as the only fire and rescue service management tool for system improvement. The recommendations provided detailed analysis of features and areas of lost credit. The Association should revisit the Accreditation process and incorporate the concurrent review that could improve the system while positively impacting the next ISO review.

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INTRODUCTION

Every year, fire departments across the nation will undergo an Insurance Services Office (ISO) review. The preparation process tends to lead to apprehension and stress primarily from the unknown of what is expected from the Public Protection Classification (PPC) program and more specifically the elements of the Fire Suppression Rating Schedule (FSRS).

The Prince William County, VA fire and rescue service (the system) currently has a Class 4/9 ISO rating. The system will be scheduled for its ten-year review in the fall of 2004. There exists a desire from the leadership of the system to seek countywide improvements and possibly improve to a Class 3/9.

The system wants to continue to improve its service delivery but has not committed to a standard or guideline to follow. The system evaluated the Commission on Fire Accreditation International (CFAI) process and determined that it is too complex of a process to undertake at this time. The system is committed to providing the best service in the most efficient method possible but lacks a specific method of accomplishing this goal.

The problem is how should the system prepare for the next ISO review in 2004. There are some issues suggesting that the system may receive a lower rating due to some policies currently in place. The system received its Public Protection Classification Improvement Statements from ISO identifying past discrepancies and an overview of some recommended corrective actions. Questions have been raised as to pursuing these corrective actions or to focus on other more global system problems.

The purpose of this research project is to evaluate the system's past ISO grading of the system and develop recommendations that will lead to the most cost efficient improvements to the system while potentially improving its ISO classification. Evaluative research methods will be used to answer the following research questions:

1) What were the weaknesses identified in the 1994 ISO review?
2) Have there been any significant changes to the system since the 1994 ISO review that could increase or decrease the system's rating?
3) What is the relationship between ISO and CFAI standards?
4) What have been the published experiences of other departments relative to the Prince William County fire and rescue system problem?
5) What standards would provide the best service improvements while potentially improving the system's ISO rating?

BACKGROUND AND SIGNIFICANCE

Prince William County (PWC), Virginia is a suburban community located 35 miles southwest of Washington, D.C. The county encompasses 348 square miles with two independent cities, a Marine Corps base, and two National Parks.

> The current population is estimated at 291,000 (as of December 15, 1999) which is approximately 863 persons per square mile of land area. The County [population] has more than doubled since 1980… with an average annual growth rate of 3.39%. The County is projected to grow to over 387,000 persons by 2020 (http://www.pwcgov.org/Demographics/).

The PWC fire and rescue system has evolved from an all-volunteer system to its current volunteer/career combination system. Increasing demand for service and the decrease in volunteer daytime participation has seen the expansion of the career department. The Department of Fire and Rescue provides career fire and rescue personnel from 6:00 a.m. to 6:00 p.m., Monday through Friday. In addition, the career service provides four 24-hour medic units and 24-hour partial staffing of one station.

Twelve volunteer fire and rescue companies in the current seventeen stations operate the remaining service time. The challenge of managing the service is met by the Prince William County Fire and Rescue Association (the Association) by resolution of the Board of County Supervisors (BOCS). The system management is provided by a board of directors comprised of representatives from both the career and volunteer departments. According to county code, this management group is “to provide for the administration and coordination of the fire and rescue services in the county” (Prince William County (PWC), 1994, 9-84.(a)).

Furthermore, the county code directs the Association to carry out the Prince William County Strategic Plan to “set future direction for the Prince William County Fire and Rescue system and to provide guidance for resource allocation and the expenditures of public funds for fire and rescue services” (PWC, 1994, 9-85.(a)(1)).

Some members of the Association expressed concern that ISO will be phased out, therefore the system should not waste time or money to seek the improvements that were outlined by ISO.

Ronnie Coleman, a well-known fire service leader said, “I don’t think it’s prudent to discount the ISO, because they need to visit your community if they want to stay in business” (Coleman, 1999, p.26). His inference was related to the extensive use of the ISO grading by the some 110,000 insurance companies in over 43,000 classified fire protection areas (Gage, 1999, p.9-1).

The issues and doubts of some of the Association members clearly becomes an issue of misunderstanding of the big picture. The National Fire Academy Strategic Management of Change provides in unit five, *Personal Aspects of Change Management* some guidance to reduce the barriers of understanding through clear communications. “To ensure that individuals understand the “big picture” and vision surrounding the change, managers need to explain the plan and desired outcomes of the change so that each person is headed for the same goal” (National Fire Academy [NFA], 1996, SM 5-5).

The minor changes that may be attainable to improve service delivery and possibly improve the ISO rating may focus on some of the aspects identified in The Change Model. The developmental change perspective would apply since it focuses on

"improving current skills, methods, or conditions that do not meet current expectations and standards" (NFA, 1996, SM 2-4).

Elements of this research and recommendation for approaching the ISO evaluation process through changing the system may apply the principles of The Change Model. I envision a multifaceted approach to the issues that will affect the system changes that may be required.

LITERATURE REVIEW

The Literature Review for this research paper focused on a myriad of sources. Foremost, the Learning Resource Center at the National Fire Academy provided the access to numerous journal articles, Executive Fire Officer applied research projects, and fire service books. In addition to the traditional research, the use of the World Wide Web, E-mail, ISO reports, and ISO workshops provide additional and current information on preparing for and improving a department's ISO rating.

The results from the November 1994 survey conducted by ISO were reported in (personal communications, January 12, 1996), to then County Executive, James H. Mullens. It noted an improvement in the county's ISO classification from a Class 5/9 to a Class 4/9…[and] should result in a decrease in the property insurance premium calculations for many insured commercial properties within the county. The results of the scoring in the ISO Grading Sheet (Appendix A) provided the credit assigned for the features evaluated.

In April 2000, Division Chief Kevin McGee contacted ISO for a copy of the Public Protection Classification Improvement Statements for Prince William County (Attachment B). The purpose was to evaluate areas where credit was not given. This

document provides a detailed scoring of each category and item along with recommendations of actions needed to receive the maximum credit available.

The FSRS purpose “is to review the available public fire suppression facilities, and to develop a Public Protection Classification for fire insurance rating purposes” (ISO, 1998). Dennis Gage, ISO’s manager in charge of the PPC reminds fire and rescue leaders that the FSRS is an insurance tool to evaluate a jurisdiction’s fire defense and is only about 18% of an average department’s responsibilities (Gage, 1999, p.9-1). Coleman (1999, p.26) said, “I have yet to hear insurance industry representatives say that they’re in the business of telling a fire chief how to run a fire department.” Even though ISO does not mandate specific management practices, they do establish minimum expectations for community fire protection. Thus, policies and procedures are written at the prerogative of the managing authority and these local policies and procedures may influence the ISO rating.

A review of current system policies and procedures found no significant links to the FSRS however since the 1994 survey the Association adopted a procedure titled *Dispatch Complements* that may have an adverse impact on the ISO grading. This procedure was established to define units dispatched to each reporting district type and type of situation reported (PWC, April 2000 p.1). The goal was to reduce the unnecessary commitment of resources to certain types of calls such as, “fire alarms sounding,” that typically are non-events. This procedure (April 2000, p.9) directs the dispatch of a single pumper to “fire alarms sounding” in structures that may not meet the ISO minimum requirement of a Class 9. ISO states that “the department shall have sufficient membership to assure the response of at least 4 members to fires in

structures" (1998, p.2). The system's minimum staffing is only three on suppression units and no chief officer is dispatched to "fire alarms."

Additional references reiterated the roles of ISO and the FSRS in the overall management of fire and rescue departments.

> In 1993, Hickey noted that the Grading Schedule is the only quantitative measurement tool for computing the adequacy of city fire suppression components…[however] it does not measure the efficiency of these systems (Hickey, 1993, p.11).
>
> The truth is, however, that until something else comes along which allows a fire department to evaluate how good a job it is doing compared to like fire departments providing fire protection to like communities, the ISO classification is the only means to do so. The efforts of the International Association of Fire Chiefs (IAFC) and the Commission on Fire Accreditation (CFAI) may be the evaluation tool the fire department is looking for. (Coggan, 1995, p.203).

Coleman (1999, p. 26) points out the relationship ISO has with the CFAI by their representation on the CFAI. He continued by referring to the fact that the CFAI's self-assessment system has a provision for concurrent assessment, so preparing responses for the CFAI helps a fire agency have the information the ISO needs when they perform their evaluation. Stan Earl, CFAI manager confirmed (in an email, February 26, 2001) the 'cross reference' however was unsure if the insurance industry will give any credit for becoming an accredited department.

Rumors of the State Farm Insurance Company's withdrawal from the ISO's FSRS was confirmed by Dennis Gage (email, January 8, 2001). Gage expressed

confidence that State Farm's decision will not affect any changes to the FSRS or PPC. He concluded that the PPC remains an objective evaluation of community fire protection capabilities and are an accurate and proven predictor of future losses.

The International Association of Fire Chiefs (ICHIEFS) recently acknowledged State Farm's policy shift was significant to the insurance industry, according to Standards and Poors Insurance Profile, since they are "by far the largest property casualty group in the world" (Kang, 2001, p.8). Kang went on to described State Farm's new approach of Subzone Rating Factors to establish lower insurance rates for their homeowners based upon past "all hazard" losses in an area defined by their respective zip codes.

The ISO's PPC has not changed since 1980 and as a result of State Farm's recent action Kang (2001) reported that ISO is now working on enhancements to its PPC with four major insurance companies. ISO is also quick to point out in a recent press release that "ninety percent of U.S. fire chiefs say the Public Protection Classification (PPC) program from the Insurance Services Office, Inc. (ISO) is "very important" in helping their departments "save lives and property" (http://www.iso.com/docs/pres213).

Other EFO researchers had a wide range of results from their research and department experiences. The City of Sunrise Fire Rescue, FL evaluated the feasibility of pursuing ISO or Accreditation as a quality service tool and concluded "that ISO grading process is a poor organizational planning tool and should not be used as such" (O'Donnell, 1998, p.30). O'Donnell recommended that his community discontinue ISO

improvements citing that it was not cost effective with a forecast increase in his department's budget of 23% to go from a Class 2 to a Class 1 (1998, p.30-31).

Another researcher compared various departments' activities in his study and concluded that both ISO and the Accreditation system can be beneficial when evaluating a department's performance (Buchanan, 1998, p. 24). He further found in his survey that many of the departments that had low ISO Classifications were also more apt to pursue Accreditation leading him to believe that both of these tools can be used in concert as performance measuring tools (1998, p.25-26).

The community of Hilton Head Island, SC performed a detail assessment of their FSRS grading and focused on an improvement process that first considered "non-cost" or "low cost" items such as record keeping practices, proper equipment, and required testing (Poindexter, 1995, p.59). He further evaluated the reallocation of existing resources to fulfill the requirement before considering changes that would lead to significant budget increases (1995, p.60).

The Roanoke Fire-EMS Department, VA had a similar experience while studying training improvements to improve their ISO rating. Grindle reported "the key to improving a training section rating often lies simply in the record keeping which does not typically represent a major expense (1999, p.21).

The issues of community outcomes with respect to fire fatalities were studied and "there was no correlation between fire fatalities and protection class" (Harnish, 1997, p. 20). Harnish also reported a positive correlation between improved ISO classification and per capita costs of the fire department (1997, p.21). In his study he found a per

capita difference by classification; Class 1-2 was $115.07, Class 3 was $114.78, Class 4 was $85.14, Class 5 was $75.60, and Class 6 was $73.75 (1997, p. 21).

Editor and author Larry Stevens was found to be a significant contributor to published articles on ISO. Eight articles and one book authored by Stevens provided a plethora of facts and experiences. Most noteworthy was his book, found on the World Wide Web, and titled *Your Next Rating, Simple Solutions* that provided the basis of his monthly column in Fire Rescue Magazine (http://isoslayer.com). This 159 page document will provide any department a step by step guide to improving their ISO rating.

Stevens recommends a department should strive for the lowest class rating that will affect all homeowners, generally a Class 3 or Class 5. He further warns, “efforts to drop commercial rates should be examined closely to ensure the cost does not exceed benefits” (1998, p. 59). He suggests empowering the departments’ employees to get involved saying, “if you have firefighters who need something to do, give them some master planning tasks” (1999, p.8). Stevens (1999, p.61) reminds departments to take advantage of the substitutions before settling for a lower rating because you can’t afford exactly what ISO requires.

PROCEDURES

Definition of Terms

Accreditation. "A process by which an association or agency evaluates and recognizes a program of study"…as provided to fire and rescue departments by CFAI (CFAI, 1999, p.1)

Commission of Fire Accreditation International (CFAI). A model "dedicated to assisting the fire and emergency service agencies throughout the world in achieving excellence through self assessment and accreditation in order to provide continuous quality improvement and the enhancement of service delivery to their communities" (CFAI, 1999, p.iii).

Fire Suppression Rating Schedule (FSRS). A "point-based" evaluation system that uses data collected from a community that is analyzed by ISO to provide the community with a Public Protection Classification (ISO, 1998, p.1).

Insurance Services Office, Inc. (ISO). "The leading supplier of statistical, actuarial, and underwriting information for and about the property/casualty insurance industry" (http://www.iso.com/doc/about.htm).

Public Protection Classification (PPC). "The numerical scale from 1 to 10, with 10 representing less than the minimum recognized protection" derived from the measurements found in the Fire Suppression Rating Schedule (ISO, 1998, p.1).

Research Methodology

The desired outcome of this research project was to utilize the evaluative research method to evaluate the system's past performance in an ISO evaluation. The evaluation of the 1994 survey and a look at the current situation would identify weaknesses to focus upon in preparing for the next evaluation in 2004. This project coincided with the Department of Fire and Rescue's interest in pursuing this project. A workshop attended by Division Chief Kevin McGee provided initial insight to the resources available to the system to learn more about its last evaluation.

The system requested and received a copy of the 1994 Grading Sheet and the Public Protection Classification Improvement Statements prepared by ISO. A comparison evaluation conducted by the author revealed the difference between the credit awarded and the maximum credit available. The system received assistance from consultant Glenn Stanley, who provided a one-day workshop for members of the Association on the FSRS. While Mr. Stanley did not make specific recommendations, he pointed out the areas that could easily provide credit that were not awarded in the 1994 survey.

The CFAI's Fire & Emergency Services Self Assessment Manual provided a cross-reference (Appendix D) between CFAI categories to ISO sections. The author performed his own comparison (Appendix E) by major ISO items to specific CFAI performance indicators.

The author made the assumption the system would be amiable to making necessary and reasonable changes to improve the ISO rating while improving the overall effectiveness of the fire and rescue service provided to the community.

The evaluation of other systems' experiences and successes were limited to published articles. The author felt these experiences would provide a good cross-section of departments in the major ISO sections. Fire department leaders and experts on ISO provided insight to decisions the system would face in the years preceding the next ISO survey.

RESULTS

Answers to Research Questions

Research Question 1. The ISO Grading Sheet provided for Prince William County indicated that credit was provided for 62.99% of the maximum credit available from the Fire Suppression Rating Schedule. Additional information in the ISO Grading Sheet for Prince William County (Appendix A), Public Protection Classification Improvement Statements (Appendix B), and the Classification Details (Appendix C) provided details and statements specific to the Prince William County survey conducted in November 1994.

An analysis of each of the three major features and items indicated the points and percentage of points available for credit. Table 1 shows the breakdown of the first feature, Receiving and Handling Fire Alarms. Points were lost in this category for

inappropriate listing of the fire department in the local phone book and the lack of a secondary alarm dispatch circuit.

Table 1

Analysis of Receiving and Handling Fire Alarms Credit

Item Number and Description	Maximum Credit	Actual Credit	Point Difference	Percent of Available Credit
(Item 414) Credit for Telephone Service	2.00	0.76	1.24	38%
(Item 422) Credit for Operators	3.00	3.00	0	100%
(Item 432) Credit for Dispatch Circuits	5.00	3.15	1.85	63%
(Item 440) Total Credit for Receiving and Handling Fire Alarms	10.00	6.91	3.09	69%

Note. Data of actual credit from ISO (1994). *Classification Details*. p.1. ISO: Author.

Credit for the fire department is given for needed apparatus, apparatus testing, equipment, personnel and training. Table 2 shows excellent pump capacity of the 16 required engines evaluated however the lack of pump and hose test records and inadequate equipment; one third of the available credit was lost.

According to ISO calculations, the county needed eight ladder companies (trucks). The county only had five aerial trucks and no true service trucks. The five existing trucks and the one reserve truck lost credit because of inadequate equipment and the lack of ladder test records. Because there was a need for three additional trucks and one service truck, engines were substituted with very low credit provided. ISO noted the ladder service item was reduced by 30 percent due to the lack of adequate response to part of the county.

The distribution of the engines and trucks received less than 50 percent indicating the stations may not be adequately sited across the county or that there is a significant need for more stations in the areas of the county served by hydrants.

Credit for Company Personnel was only 45% because of inadequate “on duty personnel” and the lack of a good records management system to document career and volunteer forces. Deficiencies resulting in the loss of 55% of the available credit in the Training item were attributed to the lack of adequate record keeping, inadequate training equipment and facilities, and company preplanning of commercial properties twice a year.

Table 2

Analysis of Fire Department Credit

Item Number and Description	Maximum Credit	Actual Credit	Point Difference	Percent of Available Credit
(Item 513) Credit for Engine Companies	10.00	6.60	3.40	66%
(Item 523) Credit for Reserve Pumpers	1.00	0.66	0.34	66%
(Item 532) Credit for Pump Capacity	5.00	5.00	0	100%
(Item 549) Credit for Ladder Service	5.00	2.21	2.79	44%
(Item 553) Credit for Reserve Ladder Service	1.00	0.56	0.44	56%
(Item 561) Credit for Distribution	4.00	1.95	2.05	49%
(Item 571) Credit for Company Personnel	15.00+	7.04	7.96	45%
(Item 581) Credit for Training	9.00	4.32	4.68	45%
(Item 590) Total Credit for Fire Department	50.00+	28.34	21.66	57%

Note. Data of actual credit from ISO (1994). *Classification Details*. p.2-3. ISO: Author.

The county’s water supply was a strength to the overall grading achieving 82% of the available credit (see Table 3). Credit was lost in the water system due to

inadequate distribution of water mains and spacing of hydrants. Two water service companies maintain hydrants and neither of them inspect the hydrants twice a year. This resulted in a significant reduction in credit for that item. In addition to testing, the Improvement Statement indicates a deficiency in the condition of some of the hydrants that were evaluated.

Table 3

Analysis of Water Supply Credit

Item Number and Description	Maximum Credit	Actual Credit	Point Difference	Percent of Available Credit
(Item 616) Credit for the Water System	35.00	28.91	6.09	83%
(Item 621) Credit for Hydrants	2.00	1.96	0.06	98%
(Item 631) Credit for Inspection and Condition of Hydrants	3.00	1.93	1.07	67%
(Item 440) Total Credit for Water Supply	40.00	32.80	7.20	82%

Note. Data of actual credit from ISO (1994). *Classification Details*. p.4. ISO: Author.

The good rating of the water system and marginal rating of the fire department led to a “divergence" point loss of 5.06. ISO defined divergence as the reduction in credit to reflect the difference in the relative credits for fire department and water supply. Stanley detailed in his training session the calculations that led to the credit reduction of 5.06 points. The formula used was .5 [(Fire Department X .8) - Water Supply. Inserting the Prince William scores for the values of fire department and water supply into the formula showed mathematically the results as .5 [(28.34 x .8) – 32.80] = 5.06

All three major features have a significant reference to record keeping. Knowing what the ISO requires will allow the department to focus on perfecting the records needed before a review (Dickson, 2001, p.64). Stevens (2000, p.76) emphasized that "this is serious business and needs proper documentation to avoid unwanted surprises." Coleman (2000, p.32) said, "if you know the rule book, you can play the game fairly." Knowing the methods used by ISO permits a "through review [and] you might notice mistakes on your last rating" (Stevens, 2000, p.75).

Research Question 2. As with any other fire department, the Prince William County system has been dynamic to respond to the needs of the public and to ensure what the Association feels is "operational preparedness."

During an Association retreat in September 2000, an ISO workshop was held to provide an outside opinion of ISO and its application to the county system. During the workshop, it became apparent to many of the volunteer chiefs that they were not fairly evaluated on their apparatus, citing that records were not provided to the reviewers when they visited each station. Since 1994, many new pumpers and ladder trucks have been purchased and placed in service. Stanley pointed out that just because it is new does not mean you get points. In reference to the analysis of the grading, the County's pump capacity was rated very high but the lack of available records and insufficient equipment affected the credit awarded.

The county built a new training center in 1994 but since it was not operational there was no acknowledgement in the review. During the Stanley training, it became evident that the county could receive maximum points for the facility however the use of the facility was in question for two reasons; 1) not all of the twelve volunteer companies

participate in company drills at the training center and 2) the majority of the career personnel work only days and are not available for night training.

Documentation and record keeping of the 258 career personnel and 840 volunteer personnel are not readily accessible at a common location such as the training center. Career records are kept at the training center however station training is kept at the station level. Each of the volunteer companies maintain their own record without a consistent method of documentation.

Fire and Rescue Association policy adopted in April 2000 titled *Dispatch Complement* reduced the fire unit response to a single engine on “fire alarm sounding”, “fires reported out”, and “smell/odor of smoke” in structures (PWC, 2000, p.9). The system’s minimum staffing for suppression units is currently three and would not meet the minimum criteria for a Class 9. This is the most significant change since 1994 and the one that would have the most adverse impact on the ISO grading.

Research Question 3. There is a strong relationship between the CFAI and ISO. Not only does the ISO have representation to the CFAI but the CFAI recognizes ISO elements that have concurrent assessment components that could be met for both evaluation processes in Chapter Six of the Self Assessment Manual, *Research and Information Collection Guide* (CFAI, 1999, 1-143).

For reference purpose, a simple cross-reference table was developed (Appendix C) from the Self Assessment Manual. In an effort to better understand the relationship of ISO to CFAI, the author evaluated what was thought to be the linkage and placed emphasis on the “core competencies” identified in the Self Assessment Manual. Appendix D provides the breakdown of the author’s analysis and comparison.

In both analyses, it was evident that there was a correlation between the two standards and in many cases, pursuit of elements of one standard would have a positive effect on the other standard.

Research Question 4. Selecting a single standard to seek system improvement or best practices is difficult to evaluate. The fact that ISO only evaluates 18% of what an average department is responsible for makes a compelling argument that the ISO should not be a management tool. Harnish's research found no correlation between fire fatalities and protection class rating (1997, p.20). His research did show a relationship of a higher per capita cost for fire department services with the better ISO classifications.

CFAI's Self Assessment model appears to be a very inclusive tool to evaluate all the elements of service for which a typical fire and EMS department is responsible. Coleman feels that if a department gets involved in the self-assessment process they can create a synergistic approach to meeting the ISO requirements (2000, p.37). He continued to say, "it's in your best interest to know the most about your department's strengths and weaknesses: it's just good management and good business" (2000, p.37)

The Department of Fire and Rescue performed an internal analysis of the Accreditation process relevant to the system's strengths and weaknesses. Captain Keen reported that the system should not purse the Accreditation process until the deficiencies noted in his study are addressed (1999, p.3). Referencing the uniqueness of the County's combination system, he recommended that there must be a total commitment of the Association to meet the rigors of the Accreditation requirements (1999, p.3).

ISO and CFAI make reference to current National Fire Protection Association (NFPA) standards. These guidelines provide the framework for the technical needs of a fire department and incorporate the safety mandates established in the Occupational Health and Safety Agency regulations.

All the standards, guidelines, regulations, and benchmarking methods still rely on the Fire Chief to manage the system in a manner to provide best service for a reasonable costs. The standards of service must be agreed upon and the community must also share the responsibility of identifying and allocating resources and participate in the program policy decisions (International City Management Association, p.423). The CFAI Self-Assessment model allows the Chief to work towards the Accreditation requirements in accordance with the communities' resources and link to the ISO components through the concurrent assessment link outlined in Chapter Six of the Self Assessment Manual.

Research Question 5. This author researched work of other EFO authors on this subject and found an extreme range in the level of acceptance of ISO and its application to their respective communities. O'Connell felt his department had reached a plateau of the ISO grading and it would be cost prohibitive to pursue improving from the current ISO rating (1998, 31).

The lack of a correlation between decreasing fire deaths to improved ISO rating and the increased cost per capita for fire department operations challenges the rationale for improving ISO ratings (Harnish, 1997, p.20-21). Parow discovered no significant improvement in the communities' insurance saving however conceded that the

implementation of the no cost improvements identified by ISO would “greatly improve the overall fire protection in the community” (1997, p.22).

Buchanan concluded in his research that “a department that meets the requirements of ISO and Accreditation should be in most cases an overall better performing department than those who do not” (1998, p.25). One of the key elements to being successful in either evaluation “lies simply in the record keeping which does not typically represent a major expense as Grindle cited in his study seeking to improve his department’s rating in the training section of ISO” (1999, p. 21).

DISCUSSION

The problems faced by the Prince William County fire and rescue system are not much different from those of any other community faced with an upcoming ISO review. Management must make tough decisions on how much resources, time, and money should be committed to improving its ISO rating. Once any system makes the commitment to making system wide changes, the next step is identifying and overcoming obstacles to change. Unit four of the NFA Strategic Management of Change, Leading Change Using the Change Management Model, points out “the key to success is to get rid of obstacles to change, alter systems or structures that undermine the vision and encourage risk taking, and non traditional ideas, activities, and actions” (1996, SM 4-12).

An effort of the Department of Fire and Rescue to educate the stakeholders (volunteer and career personnel) through training was a good approach. An outside

consultant provided an objective overview of ISO and how Prince William County performed during the last ISO grading. It became quite apparent from both workshops held that there was a significant lack of understanding of the requirements. Personal biases unfortunately were very strong. Those biases made it very difficult to overcome for those who held them to see the big picture.

Stanley's approach to his workshops was to maintain objectivity and not recommend any direction for the system to pursue. However, it became very apparent that simple changes to documentation and record keeping would make a significant impact in future scoring. While defining minimum requirements, it was alarming to learn that an Association policy (*Dispatch Compliments*) reducing the response to "fire alarms sounding" could have an adverse impact on the current Class 4/9. Failure to send a full complement to "fire alarms sounding" in a structure could result in a system wide grading of Class 10.

The Public Protection Classification Improvement Statements provided by ISO gave the first look at the credit by feature and item with basic recommendations to attain maximum credit. Most of the attendees of the workshop and training admitted that they had never seen this report because it was never requested since the 1994 review. This in itself points to the system's lack of interest and commitment to the ISO process in the past.

System-wide improvements of most fire and rescue departments are typically driven by national standards, regulations, guidelines, political influence and community demands. None of the research revealed a single source that recommended going

with ISO solely to manage a fire department. Gage recognized the fact that ISO only evaluates 18% of an average department's responsibilities (1999, p.9-1).

> Stevens agreed by saying that the standard [ISO] is a minimum—don't build your fire department around it. It doesn't really matter if we like the ISO list…we'll be graded against it either way. Ignore the list, and your citizens and businesses will pay the price for your "minimum" decisions (2000, p.8).

Turning attention now to the future review in 2004 provides an opportunity to affect the changes necessary to possibly improve the system's grading to Class 3/9. System decisions will require policy and procedure development. The specifics of these documents will depend of the final decisions of the Association.

Dickson said, "well-kept documentation can help prove your ISO worthiness" (2001, p.59). The general opinion of the systems' leaders felt that they were not adequately evaluated and credit was not given. Blame was placed on the staff responsible for the ISO team, reporting they failed to secure the documentation available on tests. The claim could not be substantiated but it was apparent in many of the ISO items outlined in the Improvement Statements report that credit was consistently not given for the lack of records on hose testing, pump testing, and ladder testing.

Coleman encouraged that "if you care about your fire department, then you must be able to diagnose its every weakness and protect it from attack" (1999, p.32). The best strategy Coleman offers to fire chiefs to be prepared is to "know all of the rules and play the game as strategically as they can" (1999, p.37). The rule book for ISO is the FSGS. Based upon the author's observation during the Association workshop in

September 2000 and subsequent ISO training in February 2001 which was provided by an outside consultant was that the system leaders did not understand this rule book. Knowing the rule book should include knowing the substitutions to the FSRS available from ISO to receive more points (Stevens, 1999, p.61).

The CFAI does provide a cross-reference of ISO features that can be included in the self assessment process. The author provided his own analysis of ISO and CFAI requirements and produced his own table for reference (Appendix E). Coleman calls this effort a “truly synergistic approach” to determine a department’s strengths and weaknesses (1999, p. 37).

An assessment of feasibility to pursue CFAI was conducted in 1999 that concluded with a recommendation of “not applying for the Accreditation Self-Assessment process at this time…[and], delay this project until the deficiencies that are outlined within the analysis are addressed and corrected” (Keen, 1999, p.3).

The author acknowledges the weaknesses identified both in the ISO Statement of Improvements and the Accreditation analysis performed by the system as excellent learning tools to provide the system framework for system improvements outlined by both documents.

Work on improving the system’s weaknesses is limited to the level of commitment of the Association. The Prince William County Fire and Rescue Service Plan includes elements of ISO and CFAI but lacks goals to attain as a result of completing these intermediate objectives. The complexities associated with managing a metro size department by committee impedes the ability of the system to move

forward and accomplish major successes when all the stakeholders can not agree on a common direction.

Documentation and record keeping appears to be a very easy way to receive credit at no costs. Further cost benefits analysis of more significant changes may have fiscal implications that should be evaluated before pursing.

RECOMMENDATIONS

The detailed analysis of each of the major features credit awarded, taken from the ISO Public Protection Classification Statements of Improvement (Appendix B) provided a point of reference of the system weaknesses by item number as broken down in Tables 1,2, and 3. In addition, ISO provided basic guidance on how to receive full credit for each of the items that lost credit.

Since the beginning of this research, the Fire and Rescue Association has developed an ISO Task Group to further evaluate and make specific recommendations. The author offers some basic recommendations for the task group to consider for improving the weaknesses identified.

Recommendations for the Receiving and Handling Fire Alarms section include:

1) List the *fire department* in the phone book in accordance with ISO requirements.
2) Develop and implement a secondary alarm dispatch circuit through an independent private paging system integrated into the station notification system receiver and personal pagers.

Recommendations for the Fire Department section includes:

1) Establish a procedure for in-station hose, pump, and ladder testing or ensure independent testing includes the requirements of ISO.

2) Develop and implement a consistent method to document the testing of hose, pumps and ladders.

3) A comprehensive fire and rescue station analysis and unit deployment analysis should be conducted to ensure best coverage while considering the ISO method of engine and ladder service distribution.

4) Incorporate in the records management system (RMS) a method to track on duty career and volunteer personnel.

5) Include in the RMS a method to track company and training center training that will be kept at the company level with an archived copy maintained at the training center.

6) Apparatus equipment inventories should be taken on all engines and trucks and cross-referenced to the ISO requirements. Consider outfitting with appropriate equipment or appropriate substitution.

Recommendations for the Water Supply section include:

1) Develop a working rapport with both water service companies to improve their inspection and testing schedule. This may include the fire department conducting one test per year while conducting pump operator training.
2) Develop a map layer for hydrants using geographic information systems (GIS) technology.

The reduction of the divergence credit lost should correspond with the improvements of the fire department elements.

The system should immediately modify the *Dispatch Complement* policy to include a full structural fire response for “alarm bells sounding”, “fires reported out”, and “smell/odor of smoke” to ensure the system will not be adversely graded on a deficient fire department response as identified in ISO.

The author agrees with the opinion of a fellow EFO student that “a department that meets the requirements of ISO and Accreditation should be in most cases an overall better performing department…”(Buchanan, 1998, p.25) The system should use the CFAI as a working model to achieve overall system improvements while conducting concurrent documentation for CFAI and ISO. The Association should reevaluate the feasibility of seeking full Accreditation once weaknesses in the original analysis have been resolved.

Experiences of other EFO students have provided a consistent message that ISO should not be used solely for the evaluation of a fire department. In addition, there are opportunities to improve at little or no costs to the system: improving documentation and record keeping. It is also reasonable to utilize a cost benefits analysis model to aid in making decisions regarding major purchases intended to satisfy ISO or overall system improvements. These analyses should be used to inform the citizens and elected officials of the needs of the fire department while potentially reducing insurance costs to homeowners and business owners.

The ISO evaluation process should be an opportunity for the system to brag and show off its strengths. While not all deficiencies can be resolved for a variety of

reasons (political, fiscal constraints, and, so on), the system should conceivably be able to improve upon its current ISO Class of 4/9 to 3/9.

Future readers are encouraged to think outside of the box when it comes to ISO. Every fire department should have a copy of their last ISO Grading Sheet and Classification Improvement Statements. A working knowledge of how the FSRS works will aid their department in knowing if they have been fairly graded. Utilizing the concurrent evaluation offered in the CFAI Self Assessment Manual should be considered the model to achieve both Accreditation and the best possible ISO rating.

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